

**RAJENDRA MANE COLLEGE OF ENGG & TECHNOLOGY,**  
**(Ambav) Devrukh**  
**SE Comp IV Rev Sum-2010**  
**Analysis of Algorithms**  
**Code: AN- 3715**

*S.F. Comp - IV (old) Sum-2010*  
*Analysis of Algorithms.*  
*(OLD COURSE)*  
*10/06/2010* (3 Hours)

4-88-up0-Con No. File  
Con. 3850-10. AN-3715  
[Total Marks : 100]

N. B. 1) Question No. 1 is compulsory.  
2) Attempt any four questions out of remaining six questions.  
3) Figures to the right indicate full marks.

Q.1. a) Explain the notations used to represent the complexity. 10  
b) Explain topological sorting with example. 10

Q.2. a) To implement the binary search, prove that the complexity of binary search is  $O(\log_2 n)$ . 10  
b) Write notes on tries. 10

Q.3. a) Write a program to sort given n integer numbers using bubble sort. Drive the complexity of bubble sort. 10  
b) Write note son transitive closures. 10

Q.4. a) Write a program to delete an element from one dimensional array. What is time complexity of it? 10  
b) Write functions to implement DFS and BFS graph searching methods. 10

Q.5. a) Explain backtracking method. Develop an algorithm for finding solution to N queen problem. 10  
b) What are different representation techniques for a graph? Write applications of graph data structure. 10

Q.6. a) Explain B+ tree with an example and show how insertions can be done in it. State its applications. 10  
b) Explain AVL tree. Its left and right rotation with example. 10

Q.7. a) Explain in detail collision handling techniques in Hashing. 10  
b) Explain heap sort with example. 10